

Promoter 01

-1161 CACAAACATA CACTCAAAAT CCAGACTCAC ATCTACTCAA TTATGCAACT
 -1111 TCATCATGAA AACATCAAAA ACAGTCAAAG TAACAAAATC AAGTCAGATT
 -1061 CAGCACACAA AGCCAGTAAA GATAGAAAAT TTAACGAACG CTCATGCTAA
 -1011 GCTGCGCAAA ATACTTCCTA ATCAAAACAG TAACAACGAG TAATTAGCAA
 - 961 AATCCGAGCA GAAAACTCTC ACCCACCTCC GAAATTCACG TCTTCACTAA
 - 911 AATTTTCGAA AGGAATCGAT CAATACCAAC CCATTACACA AAATACATAA
 - 861 TCAAAATGGC GAGAATCGTA CCTGGAAACT TTGCTTCAAG TCGCAGAGAG
 - 811 AGGAAAAGGA AGATCGTGGA GAAAGGGGTT TAGGGTTTAA GCTCAGACTT
 - 761 CTATTGGAGT AAATGGGACG GTGTCACATT TTCCGTTTTG GAAATGAACT
 - 711 TTGGGCTCAC GTTATGGGCT ATTAGATATT TGATGGGCTT TCTAGTAAAT
 - 661 ACAATATAAG TTATTGGGCT TAGTTTAAAT AAGCCCATGT TGGAAATATT
 - 611 TGACACATGT CTTGGCTACT AGTGCTAAAC ATGCAACCGA ACAGTTGTCTG
 - 561 AGACAAGTCG CAGCATATAC AATGGATCAA ACACGCCTAG TGTCGCCGCG
 - 511 TCTCGCTCAT GTGTCACCTT GTTTCCTCGT TTTTTTTTAA TTTTTCATAA
 - 461 GTTCTTTTGT TTTATCTTCA ATACAAATTT TTGGCTGTAT CTTGCAAACCT
 - 411 CTTCGATCAT ATCGCCAATA TACGTGAACA CTGGTGATCT AATTTGTTGT
 - 361 GTTAATTGTT AAATTTAGAT TCTATTCTCC GGTTTAAAAG TGAATTATAT
 - 311 GTATCATGGT TAAAACATTG TAAGTAAGAT GATAATAAAA TGATAAATTT
 - 261 AGTTGATGGA TAACGTGAAG CAAAAAATGA GATAGATACA TTTGATTTTG
 - 211 TCGTATTTTG ACATATGCGG AGAGTGAGCT ACGCGCATGA AGATCAAGAG
 - 161 ACACTTGCTC GAGCTCACAG AGTGACGTGT AAAAAGCTTA GACTGAAGTC
 - 111 CCCATGCAAA CCTAATCCTA CGTGGCTCAA ACCACGAGCT CACTTGACAA
 - 61 TATATAAACT CCTCCTAAGT CCCGTTCTCT TCATCCATCT CTCACAACAA
 - 11 ACAAAAAG -4

 - 3 AAAATG

Figure 1

Promoter 03

-1148 CAAGAGTGTA AAACGTACCG ATCAAATGTC TTTATAAAAA AAACGTGTTG
-1098 ATGTTGTTCT GTGAATACAA TTAGTTCTGG TTAACAGCTG GTCGACCATT
-1048 TTCTGATGAG AATTTATGTA AGGCCATTGC TCTGGTGTTG AGAAGGTTTA
- 998 GTTTGGTTCA AGCTAACCGT GGTTAGAAAG TTAGAATATA ATGTGTTTCT
- 948 TGATCAGTGA TATCGATCGG ATTTGTATTA TTCATATTGT TTAATCTTTG
- 898 AGTAATTCAT AGTGGTAACT CTTTTTTTTT TTTTTTTTTT TTCATATTGG
- 848 TAACTCTTTG AAATGAAAAA CATAGCTAAG AATTGCTAGC TTTGATTTAG
- 798 TCGAGACGTA CGAACTCTCG ATTTTGGTTT TTGATTTGTT GGTGTAAAC
- 748 TCTCGATATT CATAACTCGT AAGATTTTGT ACGTATCATC TTCTTATTCT
- 698 CTTTCATCGCT CTGTTTTCAA TTTTATGTCA AAACATGGTT TTGGTAATTT
- 648 CTTTTACTCC TACTTCACGG TTTGAGTTAT AATTTTTTTG GTAAACCCTT
- 598 AACCACGAGT TTTGATGTAT TTTGACACCT CTAATTATGT GTGTATACGT
- 548 ACACATATAA TTCGGTATTT TCTTAACATA TATATCCCTC ATAAAAATTT
- 498 CTTACATGCA TTGTTTCGTGA GTGACCCGTT AATATATATA TTGATAGATA
- 448 CTCTTATAAA ATTATATTCT AAATTTTCAGA TTAAGCTGGC ACAACTATAT
- 398 TTCCAACATC ACTAGCTACC ATCAAAGAT TGACTTCTCA TCTTACTCGA
- 348 TTGAAACCAA ATTAACATAG GGTTTTTATT TAAATAAAAG TTTAACCTTC
- 298 TTTTAAAAA ATTGTTTATA GTGTCATGTC AGAACAAGAG CTACAAATCA
- 248 CACATAGCAT GCATAAGCGG AGCTATGATG AGTGGTATTG TTTTGTTCGT
- 198 CACTTGTCAC TCTTTTCCAA CACATAATCC CGACAACAAC GTAAGAGCAT
- 148 CTCTCTCTCT CCACACACAC TCATGCATGC ATGCATTCTT ACACGTGATT
- 98 GCCATGCAAA TCTCCTTTCT CACCTATAAA TACAAACCAA CCCTTCACTA
- 48 CACTCTTCAC TCAAACCAAA ACAAGAAAAC ATACACAAAT AGCAAAAC -1

1 ATGGCTA

Figure 2

Promoter 04

-1037 CAAACCAT TG TTTACACGTC AATTTGAATT GCGTCAAATA TTCGACTGGA
 - 987 ATCCTACAAC ATATTTCTTC TATTATATCA ATAGGAAGCA ACGAACGTTC
 - 937 ACATGAAGCC ATGCAAAAAC AAATTGAGAA AAAAAATCAG AAAATTTATG
 - 887 ACAAGTGGTC TTGCTTCTTA TACTACGTCG TGAATGGATG GTAATAAACA
 - 837 ATTAAATGTT ACCTCTAGTT TTTTTTTTTT GAGAGAATGG TTTTATCCG
 - 787 TATATGGCTT ATTACAAGTT TCCTCCTTTT TCGAGTTTGG TTTGAGGTCT
 - 737 ATATTGAAGA TGAGATACTA AAAATTGAGG TAAATTCTTT AGTGTGAAGG
 - 687 AAAATTAGTA AATACGATAC GTTTGGAATT GTTTACTACT AAAAAAAAAA
 - 637 TTGTTTTAGA CCAAGCCAGT CCGACAAAAA GGCGTGTGAA TCATAAGAAG
 - 587 TATCACATGA TGCTAGACAT AAAAGATTTT TCAAACATGA CAAAACAAAT
 - 537 TGTGAGTGTC TTAGTCATGC CATTTGAAGT AGAACGAAAC TTAGTGATGA
 - 487 GACACGTAAC ATCAGTGAGA ATCAAGATCT AACTTCGGAC TTATCGTACG
 - 437 TACCACGTCC ACCTAAGTGT TATCCATATC TACTACATGT CTATCTTCAT
 - 387 TCAATTTTTT TTTTGCATTA ACTTGTAAC ATAGTGCATA ATAATTAGAA
 - 337 TCAAGATTTG AATCCAATTC GCTTACTAAA TCCTAAATGT TAAAAGCATA
 - 287 CATGTTTTTC AAATCCTACT TTTAGGTGCT AAGTTTTTTT TCTAAGGTAG
 - 237 TTAGAGATTG TTAGATTTTA TATCATTGAA CTGATCATCA GTCTCTATAC
 - 187 TAACTTCTAG ATCTCATTGA ATGTTTACTC AATTTTTTTT AATTTTTTGT
 - 137 TTGGATAATC GTCTGCTCGT GGTTTTGATG CGTACGAACA CTCGTCACCA
 - 87 TGCATGTCAA GCTCTCCTTC CTATATAAAC TAAAACCACC CATTATTGTC
 - 37 CTCAAAAACA AACACATCAA CAAAACAACA AG -6

 - 5 AAAAAATG

Figure 3

Promoter 06

-1413 CTAAACGAGT AAAGTTTAGC ACGATTGAGA CCACACTGAC CCATAGCAGT
 -1363 CCAATGAGCT ACGGAAGGCC TAGGGCTTGA GGCTTGATGA GCGCGTGGTG
 -1313 GAATAGCGTT TGAATCTAAA GTTCGGTTTG GTACGACTTG TAATATGAAA
 -1263 TAATAATGTA CAAAGAAGTT CTACGCTTAA GGGAACTGTT TTGTTTTGAG
 -1213 CTTTGTATTA GGACGTCTAG TGTACAACAA CGAACGTCGT GTATAAGCGA
 -1163 TCGTTGACTC TGCACATGTA ACTCTTTCCT GAATAAAAAA TCTTTAAGTC
 -1113 TTTAATTTCT ACATCTTTTA GGATTATATA AACGTTACTA TATAAATAAA
 -1063 AAAGAAAAAA AAATCAGTTC ACTAACATGC GAGACTTTGG GCTAAATATA
 -1013 GTGATTCCAA AGAAAATGAG TTATAATATT AATTAATATA AAGCTCATTT
 - 963 TCTTTGGAAT ATCGTTATAA GAATATTTTA ACTTGGATAT AACTGGGCTT
 - 913 ACGCCATTTG CATCTCGAGG ATTTTTTGT TTTGTTTTTG TTTTTTTAAT
 - 863 ACATTCTCGC ACTTACACAC TAAAAATCAT AATGATCTTC TTAATTCTTT
 - 813 AGCGGAACCA CCAATTAATC TTTTTATTAA GAACTTTATT ACTTATTTCA
 - 763 CTTATTTGTG CATACGTGCA TTATTTTGGC AGTAACAAAT ATCGCGTTAT
 - 713 ATATACTGAA ATCCGGACGC ATTAATAATA GGGATATGAT TATATGAACC
 - 663 ACTATCTAGC TTTGGTAGAA ACCCAATTAT AATCAAATAA TTTACCATTA
 - 613 TTGAATAAAT TAGGCTATAT AAGTTCATTA ATAGATGCTA TAGGTTTTTC
 - 563 TTACAAGGCA CACATTTGAT TGTTATTTTC TTTCATATAC ACTGAATGTA
 - 513 CATGTGTACA CTTGGCATAAC ATGGCAAGAT TATGTGTTAC AATATAGACT
 - 463 GTGCCATTGC CATGCAATGT GACTCCTGTG GCCATTTCTA TCACAATGTG
 - 413 TCAATCTTGG AGTATCCGTT GTTTATCCTC TAATTTACTG ATTAATTTAT
 - 363 GAACATGTAT AATTATTTAT ATCATATGAT CTCGTAAGAT ATCTTAGCAT
 - 313 TTTCCACCAT ATGTTATTAG TAAATCATCT AGATGGATTG ATGTAAATAG
 - 263 GAAAGTTAAA TTAACACACC AAAAAAGTAA CTGATTAAAA GCATACAACT
 - 213 TAATATTCAG ATTATGGTAA CTAAATCAGT CTCATGCAAA CTCCAAAAAA
 - 163 TTATACGAGT CACAACCTCT GATTTTTTTC CGGTAAACA AAATACATAT
 - 113 TTTCATTTGT ATGCAACCAG AATAAAACAC TAACTATCTC CTTTAAATAC
 - 63 CATTTTCCCT ACGAGTCTAC GACGCTCTCT AAACCTCTTA TACAAAACAA
 - 13 AACACACCC -5

 - 4 AAATATG

Figure 4

Promoter 07

-1118 GATCCGAAAA GTAGAGTTTC GTGGATCTGA TAATTGGAGA AGAGAGAACG
 -1068 AGCTGAAACC CTAAATTCGG ATAAAGTCTG CAACTTCTGT TGTTTCGGTG
 -1018 GCGAGAACAA AAATAATGAG AGGAAGAGGA AAATATCGTC GTTTTTGTCT
 - 968 CACAGTCTCT TTAGCAGCTT TTCTTTAGAT ATTTATTTTA TTTTTCCTAT
 - 918 GGATAGAGAG AGCTAGGCAT TCCGGTTATT TGGAGATTTT GGAATTTCAA
 - 868 TTTTGCGGTT TGGTATTTTA TTTTATTTTA TCAATTTGAA CGAAACAGAG
 - 818 CTTTGTTTTG GTTACGATGC GGTGGATTTT GGTTCGGTTT AGAGTGATAT
 - 768 ATATTTGGTA CCAAATTAAA CCAAGATTCG TTTTCGGTAA AAACAAAATT
 - 718 TGATTTTTAA GCATTTTTTG AAAAATTAGT GTTATATATA TGAGATTTCT
 - 668 TAATCAAAAT CTCACTTTTA TCCGATTTAG TGGTAGTTCA TAAAGTGGTT
 - 618 TCATGTATAT GATACCTGAA TAACCAACAT ATGTATTTTA AGAGACACTT
 - 568 GGAATAATAA TTCTAAATAT CCTAACTACT CGTGTCCGTA TGTTTTGTCA
 - 518 CGGTGAAACG TGAGAGGACT AGTTTTTGTC ACCCGTCCAT AACATTCTTA
 - 468 GACATACATT ACTTTGGGAG TGAAAAACAT TAAGCTTATC TTTATCCATA
 - 418 TATTGTCTTA CCATCAATAG ACAATATCCA ATGGACCGGT GACCTGCGTG
 - 368 TATAAGTAAT TTTTCAAGAT GCTAAACTT TTATGTATTT CAGAATTAAC
 - 318 CTCCAAAAC ATTTATTGAC ACACTACTAC TCTTCCGTA TTGACTCTCA
 - 268 ACTAGTCATT TCAAATAAAT TGACATGTCA GAACATGAGT TACACATGGT
 - 218 TGCATATTGC AAGTAGACGC GGAAACTTGT CACTTCCTTT ACATTTGAGT
 - 168 TTCCAACACC TAATCACGAC AACAAATCATA TAGCTCTCGC ATACAAACAA
 - 118 ACATATGCAT GTATTCTTAC ACGTGAAGTC CATGCAAGTC TCTTTTCTCA
 - 68 CCTATAAATA CCAACCACAC CTTCAACCACA TTCTTCACTC GAACCAAAAC
 - 18 ATACACACAT AG -7

 - 6 CAAAAAATG

Figure 5

Promoter 09

- 975 TCAGAAAGAG AAGTGAGCTA CCTGCAGTGT CCTCTGTTTT GTCGATGAAG
 - 925 GATTTTTTAGA TTGGTATGTG ATGAAGTACA ACGAGCTGAT GCCTGCGTTG
 - 875 ATGGCTATCT TCACCAAAAG TCGTGTTTGT TATGAAGCAC AACGAGCTGG
 - 825 TGCCTACGTT GATGGCTATA TTCACCAAAAG GTCGTGTTTC ATAGATCAGA
 - 775 AGGCACACCT ACAACAATGA GCAGTGCCAA GGTTTGTTCT TATTTTGTTG
 - 725 TTGTCAGTTT TAGATTTCTA GATGAATCTT ATGATGTGAT AATGGAAAAA
 - 675 CGAAAGAAAA GCTTTTGTTA AAGTATCTAT GAGTGATATC ATGATATGTC
 - 625 AAAAATGTTG CATGGATACA TTGATTCTTT AGTACTTGTT ACGAGCTGCT
 - 575 AAGAGAGTCG TGTCAAGTTC AATACTTTTC CTTGTCATTT AACATAATTG
 - 525 CTTGTCTGTT TGGATTCTAT TGTGCGGAAG TTATGATTTA TATTTTCAGA
 - 475 TTCATATTTT CAATTAGGAA GCTTTAGTTG GAATCAAAGT GGATGACCCT
 - 425 GATTGAGGAT TTTAATGATC GTTGTGAGAA CCTTTCTTGT AGTTAGTTGG
 - 375 TGGATTGTAA AAAAATTATA TGTATTTAAC TCTTGATTGA GAGTCAGAAG
 - 325 TTGGAAAAAT GAATTAAGAG GTTTTCGAAT AAGAGATCAC AGTTATAGTA
 - 275 TAGTATTAAT TGGATATCAC AATCTATTCA TAATATTAGC TAGTTAGATA
 - 225 AAATTGTGTT TGATCTTGGC AAGAGGTGTT AAAATAGTAT CATGTTGACA
 - 175 TGTGTTGATG ACTATTAGTC GTAATTTAAG CTTATGTATA TTTCTTGTA
 - 125 GAAATGTTCA TGTATCATAA TAAATACAAG TGTATCGAGT TTTTGTATAT
 - 75 ATAGAGGTCT ATGATTTGGG AAGAAGAACA CAACATAACT CACCACAAAC
 - 25 ACAATCTAAT CCAAAAAATC AAAAG -1

1 ATGAAT

Figure 6

Promoter 13

-1121 TGACACGCAA CAACCAAAGC CAAAAGGGTG CGTTACCATT AATTCAGGGA
 -1071 AAGCGAAATA AACCCAAATC TCTCTTCTAA CGAAGTAACA ACTCACCCAC
 -1021 TTCTCACATT GATTCACTCC TTTCCAGTTT TTACATATAG CCTTCGTTCA
 - 971 TCAATCACCT TAAGCAAATT GCAATCACAA AAAAAAAAAA GTACAGTACT
 - 921 TAGCAAAATT TTAAGTTTTT GTTATTTCCA CGGCAACTTA GCAAAATATGC
 - 871 ACCACATATT GACATTAGCT AATATACAAC ACATGTTTTT TTAGAAATGT
 - 821 ACAAGCATTA ACAAATATCC AACACAAAAT GACATGATCG TAGATGATTA
 - 771 AGATAATTCG ATCCCTATAA CTAATAGTTT CCAAACTTC TGCTGACTTT
 - 721 TCTCTCGACA GCGATGGTAA GAAGAAGGTA CAAAGTTTTG AAGCCCGAAT
 - 671 ATAACAAAAG GACAGAAAGC TTTTAGTTTT CTAGATAAGA TCTTAGCTTT
 - 621 GGTCACGTAA AAAAAATTAA AAGTGAATTG GTTAACAATA TAGGAGTACT
 - 571 TTGTATCCAA AGGTCATTGC AATAAATAAA CACTTAAGTA CTCTGTAGTC
 - 521 ACACATCTCT AGGAGCTTAA TATTGGATAA TCGCTTGTAG ACTTGTATTA
 - 471 AAATATTTAG TAGGTCAAAT CCCTATCTTC TACAGTTTCT ACTCTCGTCC
 - 421 GTACAGACTA CAGACACTAT GCTATAGTTT TGTGTTGAAT TCTACAAAGT
 - 371 ACAAATTCTT CTTTCGGTGC CAATAACAAA TAAACACAAT TCTCAAATTA
 - 321 CATTTGTCTA AATTTTTTATT TGATTCGGTA TAAATGTAAC GCTATGTTGG
 - 271 GAATCATATG ATAAATCCAG ATTAAGACTT CTTATTTAAT TTATTTTTGT
 - 221 ATATATAAAA TATAATATCC AACCATAAAG TTTTTTTACC GATCGATGAT
 - 171 AATGTGAATC CAAATATTTT AACAGGATGA TAAATAATTG ATGTGGCTTT
 - 121 TATAACCGCA GCAATTCTGG CGTGACTCTC TCCGCAGCAT TTATTTTTCT
 - 71 CTCTATAAAT TAAAAACATT ACTTACTCTT TCTCTCTTCC ACTTAACTCA
 - 21 TATCAACCTT CGCCGGA -5

 - 4 AATAATG

Figure 7

Promoter 14

-1056 ATCTCTGCAA ATCAAACCTT ATTATTAAGC TACATTTACA TAGTGTCTCT
-1006 ATAATTCTCA TGACATAGCA ACATTATTAA ACGACAACCTT TCTAGCTTCA
- 956 TTTAAAATGG AAAATCACAT AACACTCACA TTAACATATAC TAACATAACA
- 906 CTCACATTAC CGACTAGCAT ATAAATGGAT ATTGATATAA CAATAATCCC
- 856 CCAAATTTAT GTCTATTTTG TTCATTATGC AAATGTCCCA AAATGATATA
- 806 TCTTGGAAG TACTAACCGG AGACGAGGGT CGAGGTATAG AAGTGATTTG
- 756 GTCGAACCGA AATGAGGAAC CCGGGTTTGG ACACCAGGAG CATTTTGGTA
- 706 ATCATCCAAA TCAGGGTCAT AGTACAACAT CATTCGATCG CTGAAGCACC
- 656 TGGTGAAGGG AGACAATAAC ACTGCTGCAT CGAACCATAG CCTAAACCAT
- 606 CCACCACTCT TCTTATGAAT CGGATATAAC CAGCTGCTAC ACCAGACACT
- 556 ACTTGGCTTG TATTCTCTGT CCAGCCGTAC CTCTAGCTGG TTACCTCCGT
- 506 TTCCTGGAAC CAGAATCAAA GGTACACGT TGCTACCCAC AGCTTGACAC
- 456 ATCGAGGTCA TCGTCACCAC AACGAGTATC GCTATGACTA CCGAATAATG
- 406 TGAAGATATT TTTTTCATTT TCGTTCTAAG AAACAGACTC TCATGGTCAT
- 356 GGATCTATGC AGAAAGCTGG AGATTTGAAG AAAAAGGTCC ATTGAATTTG
- 306 AAAACAGAG TAGTATCTTA AACGTAAGG CTTAAGATAA GTAGTATATG
- 256 GTGGATATGG AACCCGCGTA ATCATCTAGA GGCTCTACAA ATATTTATTT
- 206 TGTATTTTCT TCTTATTTTG TATTTGCCTA CGTGGCATT AACAACGTAT
- 156 TTAACCTGAA ACCAGATTTA TGGCCCAATG GGTCGGGTCG ACCCGACCGA
- 106 TTTTAACTG CGCTCCTAAC TAAAAAAAAG TCAAAACCCT TTGAAAAACC
- 56 TAAAAACGCA ATTTGCTTCG TCGTCTCTCA TCTCTTTCTC TTTCTCCG -9

- 8 TCGCCACCATG

Figure 8

Promoter 15-2

-1074 GTAAGTCGTT CTCTAATCTT CCATGCCAAT TTGCTCGGTT AAAACCAGAC
 -1024 TGGTTGGACT GAAAAATCGG TTTTAATTAA TTGAGTTGTG CTTATGAGGT
 - 974 CTATTGGTTT ATTTTAAAA TCCTTTGTAG ATTAGGAGAG TACCAACAAG
 - 924 AGCGAAAGAC ATCACTAAAC ACGAAGAGTG AAAGTGGAAA AAGAGAACTA
 - 874 TCAAGACTTG ACTCGAAGAC CGGATTGTAC CCGGATGATT CGAAACAGGG
 - 824 CGGTGCTGGT GCTGGTGCTG GTGGTTGGCT TTCTTGTTGT CTCTGTTTTT
 - 774 CGGTGAAAAA TTGAGGTTAT TACTCTTGT CATGTCAATT ATTTAGGTCA
 - 724 TAGCTGTCCA AGAGACGCGA GACATTAGAC AAGGTAATTA CCGATTGTAT
 - 674 CCTATATATT CCTATGTAAC GAAATTCAGA TACTACGTAA TCTTAATGTG
 - 624 TCGATGGAAT GAAAAAATAA AGTATTCTGT AAATATTTTC TATATATTAT
 - 574 TTAGCATATA TACGCTTTAT AAATTATAAA TTTGGTCCCT CCCAAATACA
 - 524 TGAAAACAAT GTAGTGATAA AAAAAAACA AATTCTGTAT ATATGCTATT
 - 474 TTTATAACAT AACCAAGCATT TTTCTTAGTC GGTTAAAATT TCAAGTGTTT
 - 424 AATACTTTTA TATAATTATG AACGTAAGTT ATAATCTATG TTTTTTTTGG
 - 374 TCAGTCCATT ATTGATTATT CCATTCACAC TATATGCAAC CTATATTCTT
 - 324 CCTATGAAAC TTTTGATCGT GTGTTAAATA ATAATACAAA TTTGATTTC
 - 274 TCTAATAGGT GGGTGGGGAC TCTCTAATTA CGTTCTTTGA CATCTACTCA
 - 224 TCAACATTTG GCTAATCTTT CTAAAGGAAT TCCATCTACC GGTCATTTTT
 - 174 GTTTAAATGC TCTCTTGTA CTAAAAGTCC GTACCAAAC TGTGTAATTT
 - 124 CATTAAACAT TAATTATTTA GTCCATTCCA TGTCAAATAT GACTTCTATG
 - 74 CTCTTGTCCT ATAAATTTTA AAGCAATGAG GATTCACCAA GTATACATGC
 - 24 ATAACAAATT AAGAGCGAG -6

 - 5 CAATAATG

Figure 9

Promoter 16

-1044 GTGAGAAAAT TCATGAGCAC TCTTAGAAAT GTAAATAGTT TGATTTGAAG
 - 994 AAATGTGGTT TTTAAGAAGA TAATTGCAAA ACTCAGAAAG GATTTACAA
 - 944 AAAACAATTC GTGAAATCTT TCCTGAATTT CGTAAATCC TTTCTAAATT
 - 894 TTAGAAAATT ATTATTTGAA TGATTTTACG AAATTTCCGA AAGAATCTAT
 - 844 AAAATTCAGG AAAGATATCA TAAAATTTAT GAAGAGTTAT ACACAACAAA
 - 794 AAGAAATTTT TGAATTTTCAT GAAATCCTTC GTAATTGCTT ACATTCCTTC
 - 744 CTAAATTTTG TAAAATTCTT CCTGGATTTT CTTTTCGCGAG AAAATAGGGG
 - 694 CATATATTTT TTACGGGAAA TTTTTTGACG AAAACTTATT TTGGCGGAAA
 - 644 AAATTGTCAG GAATTTTTTG TAATGAATAT GTGTATTTTT TTAATTGTTA
 - 594 ATTTTAATAA TAAAATAAAA TAGTTATCTG AATGTTATTT ATGTCAAAAA
 - 544 AAAATATGAA TGCTATTTTT GTCTTAAAAA CTTAAAATTG TACTATTTGA
 - 494 AGGAATTTCA TTTTATTTTA TTAATGTGAT TAGATTTATA ATTAAATATA
 - 444 ATTAAATGAT TGTAATACT AACTTAAATT CTTATTTATA AACATAAAGT
 - 394 AATATTTAAT TTTCTTTAAT TAAAAATACA TATTTTATTT TCATAATTTA
 - 344 TTTTGCTTTT TTTTTTTTTT AGTTTGTATT TATTTTAAA CATATAATAT
 - 294 GAGTATATGA CTATATGACA TAGCATATTG GTTTATTTTG ATTAGATAGA
 - 244 AAAAGAGACG GGTGAATAAA AGGGTTTAAT ACTATGGTGA ACCCAAGTAT
 - 194 ATATCGTCCA TAACAAAAAC ACTATATAAT TGAGGTTTGT AGATTGTGCA
 - 144 AACACGTGTG GGCATATCAG CTTGTAGGAT TGCCACATAC ATTATCATGA
 - 94 GAAGCTTCCA CCAGAATAAA GCAAAACAAA AAACCTCCGA AGCGGAGAGA
 - 44 ACAAGGAAAA CTGAAAAACC ATTGTGAAGT ATAGTCCTTG ATGC -1

1 ATGGATT

Figure 10

Promoter 17

-1141 CAAACGAGGC TCCAAATTCA TATTCGGCCT GCATACTTTT GCCCTGGCCC
-1091 GGTTTTTTTT TTTCTTTTTT TCGGTGTTTC ATAATACATC AGCTTCCATA
-1041 ACTGGAGCAA CCGTTATAGA AAGACATGTA TAAGAACCCC AAAAAACAG
- 991 GTACGTCAA AGAGGAAATT CTCATAACAT ACACAATATG CTCCTAATCA
- 941 GCCATCGTGT TGTGCTGATC TCCTAGGTGA CATTATGTAT ATCTGTTTGA
- 891 TATTTCTTTA ACACAACATG TTATCAGTTA CCCATCAAAA CGTAGTCAGC
- 841 TTGAGGTCTT CCAAAAAAAT CCACACTAGA CCTTCCTTCA TCACTTCAAC
- 791 AGACTTCAA CTTCTATCCC AAAAGGAAAA AACTAAATAA GTTGAAAGGA
- 741 ATGGTCGAAG GCATGGGGAG ACACCTAATA CGGCAGCTAG ACTAATCCGG
- 691 TGGATTGATA AGCAAAC TCG AAACACTCTT TCCTCTATCA GATTATTGGG
- 641 GGATAGGAGA TATGACAAAA GACTGCAAAT GTGGTTTGCT TCTAGAAGTT
- 591 AAGAGCTTCC GGGATTTTGT TTTTATTTT TTCAGTGTTG TAACAAATTT
- 541 AAATTCTGTC GCACTTGTCG TAACAACGAT ATTTTTTCTT TGAATATAAT
- 491 TTAACATTAA ATTA AAAAGA AAAACTAAAT AAATTATTTT GAAGTTAATA
- 441 TATTATGTTA TTATCTTTGG TTTGCAATAA ATAGATCGAG TCAAGGTCGT
- 391 TATATGACCA TTGTTTAGTT ACGACGCTAC TTCATACTTG GAATCTAAGG
- 341 AGAAAAAATG TAACATAGTT CTCAGTACTT AATCACATAG TTCTCAGTTC
- 291 TTAATCACTT TATTGTTAAA ACTTTTCATC GAATAATTAA TGATTGATC
- 241 TCCAATCTCA ATTAATTATA TATTTCTAAA GCCAAAAGAG ATAATGAAAG
- 191 GAGAGGTGGT AGAAAGAAAA CGTTAATGTA TCAAACTCTA ATAAAAGAAA
- 141 CTGCGTGTAT AGACACGAAG GCTCCGATCT TTTGCATGTC TCGCACGTGT
- 91 CGTCCTCTTT CTCCTACTT AACACATATA TGCATGCACC CTTCTTAGAA
- 41 AAGTAGCAA ACATTGTGAA TCATCGGAGA GAGTGGGAAA C -1

1 ATGGAGA

Figure 11

Promoter 19

-1293 CACCAAGCCT ATACAAACAT AATTTAACGC CGCCTAGTTT TGTTTATTCT
 -1243 GCACGTAACA TATAAAGCTA ACAGATATGC GACAAAATAT CTATAAATTA
 -1193 CATATATAAG TATATATAAT ATAAGAATGT TGGATGTATA TATTAGTAGT
 -1143 TTAATCAATG AAAATATATC TTTATATCTT TATTAAAAAA ACTAAAAATG
 -1093 TATCTTTATA TACATTTTCGT AGTTTAAAAT CAAAATTCAA GATAGAGCGA
 -1043 AAATGATTTT TTTTTTTTTT AATGAACCAA AAGTACAACA TTCCTACCTT
 - 993 TATTTTTAAT AACTCGTTTA TATTCGCCAA TCAGACACAC ACATAGACTT
 - 943 TTAAATAGT AAAAGTAACT TAGCCGATTA TTTATGTAAA ATATTCGTAT
 - 893 AAAATTTTTT TTAACAAATA TATTTGATTT CTCATCTTAT AACCTGTTTA
 - 843 TTGATCAGAT TACACGAAAA AATAACTAAA CAGATAAATT TACTCGAACT
 - 793 GCATACAATA GAGATGTATT TGTGCATGAG TGTAGCCCAA AAATGTGTAA
 - 743 GGAAATAACA CCCATTGGTA GGCCGAGACA TGCCTGTACC ATGGCCGCTG
 - 693 AAATAGTAGA AGAACCAAAT ACCTACCAA GTACTCTTAA GCTAACGTTG
 - 643 ACATGATTTA ATTAGATTAA CGATTGAGTA AACGACAAAT TAGCGCTTTC
 - 593 GTTTTATATT AAAGACGCAC GATATTTAAA TGGCAACTAT ACATTAAAT
 - 543 TATATAAAT ATATAACTAT AACCAATTTG ATAAATGAGA AAAATGTACG
 - 493 ATATGTCGTA CCACTCCATC CTGACTATGA CTTATGGAGG AAGTCAATGC
 - 443 TTATCAACTA CTTGCTTATC AATATCCTAT TTATCACTAT CAGTTTTTCT
 - 393 CTTTTCTATA CATATATTAT TTCCTATAGA TCATGTTGGT CATAATGTAA
 - 343 TCAACTTAAA ATTTAAGATC TACTAGTTTG TGTTGAAGTA TAACTGTATA
 - 293 AGCCTAAATT CGAACGTTAG TCTGACTTAA TAGTTAATTC CATTTTGTTT
 - 243 TGGGTAAATG TTTCAGTTTC ACTGCTGTTT GGAAAATCTT TGGACAGATA
 - 193 TTGAGATTGG GCTTATAATA TTTATTATTG GGCCTTAATT TAAGAGCCCT
 - 143 TTTATAGGCA GATACAAAA CGACGGCGTT TAACTCATCC GCTCAGCGAC
 - 93 TTCCACATAG CCGTTAAAC GATGATAATA AACCCAATCC GGTTCATCTC
 - 43 CAACAGAAGA ACGTAATAAC TGATGCTTGT CTTCAAGTCA AC -2

 - 1 CATGGAGT

Figure 12

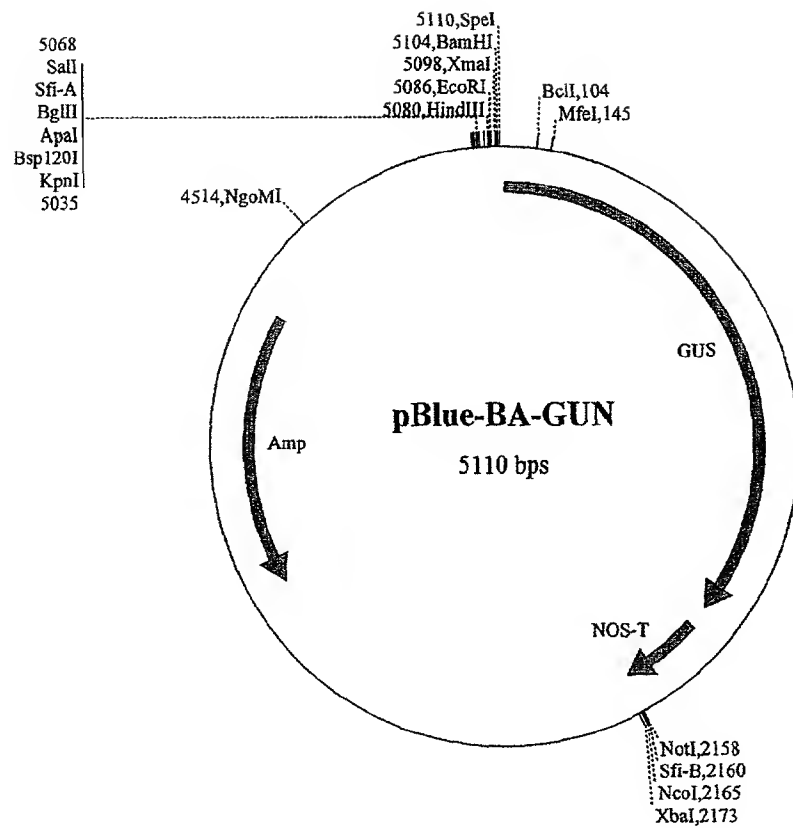


Figure 13

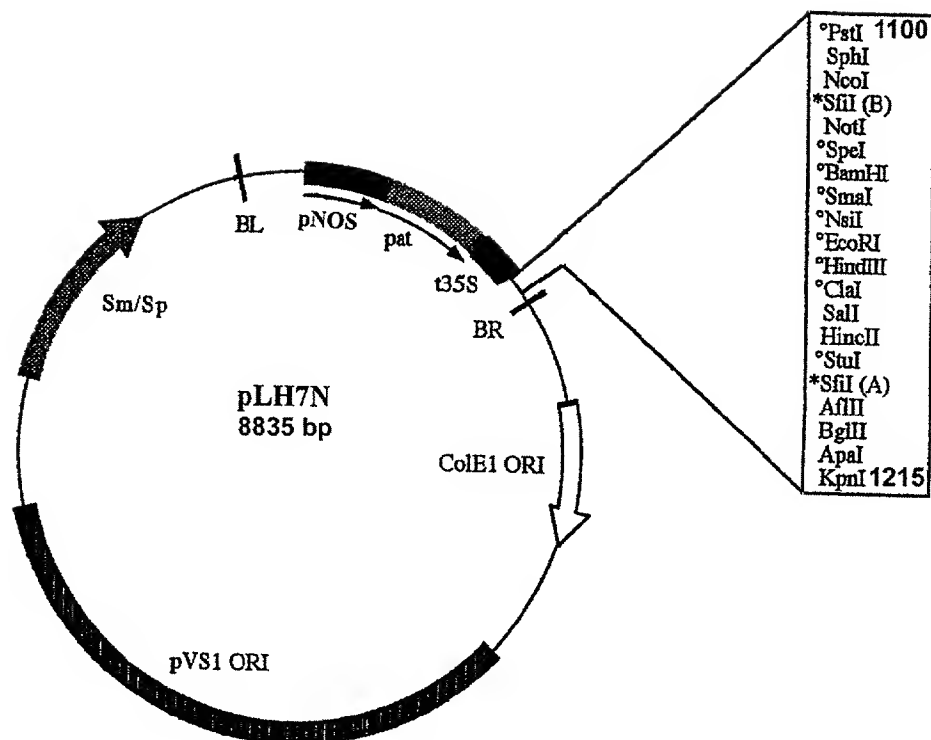


Figure 14

Promoter 6 :

GATCTCTCCCGAAGAAG

CTAAACGAGTAAAGTTTAGCACGATTGAGACCACACTGACCCATAGCAGTCCAATGAGC
TACGGAAGGCCTAGGGCTTGAGGCTTGATGAGCGCGTGGTGGGAATAGCGTTTGAATCTA
AAGTTCGGTTTGGTACGACTTGTAATATGAAATAATAATGTACAAAGAAGTTCTACGCT
TAAGGGAACTGTTTTGTTTTGAGCTTTGTATTAGGACGTCTAGTGTACAACAACGAACG
TCGTGTATAAGCGATCGTTGACTCTGCACATGTAACCTTTTCCTGAATAAAAAATCTTT
AAGTCTTTAATTTCTACATCTTTTAGGATTATATAAACGTTACTATATAAATAAAAAAG
AAAAAAAATCAGTTCACATAACATGCGAGACTTTGGGCTAAATATAGTGAATCCAAAGA
AAATGAGTATAAATATTAAATATAAAGCTCATTTTTCGAAATATCGTTATAAGA
ATATTTTAACTTGGATATAACTGGGCTTACGCCATTTGCATCTCGAGGATTTTTTGT
TTGTTTTTGTTTTTTAAATACATTCTCGCACTTACACACTAAAAATCATAATGATCTTC
TTAATCTTTAGCGGAACCACCAATTAATCTTTTTTATTAAGAACTTTATTACTTATTT
ACTTATTTGTGCATACGTGCATTATTTTGGCAGTAACAAATATCGCGTTATATATACTG
AAATCCGGACGCATTAATAATAGGGATATGATTATATGAACCACTATCTAGCTTTGGTA
GAAACCCAATTATAATCAAATAATTTACCATTATTGAATAAATTAGGCTATATAAGTTC
ATTAATAGATGCTATAGGTTTTTCTTACAAGGCACACATTTGATTGTTATTTTCTTTCA
TATACACTGAATGTACATGTGTACACTTGGCATACATGGCAAGATTATGTGTTACAATA
TAGACTGTGCCATTGCCATGCAATGTGACTCCTGTGGCCATTTCTATCACAATGTGTCA
ATCTTGGAGTATCCGTTGTTTATCCTCTAATTTACTGATTAATTTATGAACATGTATAA
TTATTTATATCATATGATCTCGTAAGATATCTTAGCATTTTCCACCATATGTTATTAGT
AAATCATCTAGATGGATTGATGTAAATAGGAAAGTTAAATTAACACACCAAAAAAGTAA
CTGATTAAAAGCATACAACTTAATATTCAGATTATGGTAACTAAATCAGTCTCATGCAA
ACTCCAAAAAATTATACGAGTCACAACCTCTTGATTTTTTTCCGGTTAAACAAAATACAT
ATTTTCATTTGTATGCAACCAGAATAAAACACTAATCTCCTTTAAATACCATTTTTC
CCTACGAGTCTACGACGCTCTCTAACTTCTTATACAAAACAAAACACACCC

AAATATG

Query: 1 ATTCCAAAGAAAATGAGTTATAATATTAATTAATATAA-AGCTCATTTTCTTTGGAAT 57
|||||
Sbjct: 57 ATTCCAAAGAAAATGAGCTTTA-TATTAATTAATATTATAACTCATTTTCTTTGGAAT 1

Figure 15

Promoter 14 :

CATCTCTGCAAATCAAACCTTATTATTAAGCTACATTTACATAGTGTCTTATAATTCT
CATGACATAGCAACATTATTAACGACAACCTTTCTAGCTTCATTTAAAATGGAAAATCA
CATAACACTCACATTAACATACTAACATAAACTCACATTACCGACTAGCATATAAAT
GGATATTGATATAACAATAATCCCCCAAATTTATGTCTATTTTGTTTATTATGCAAATG
TCCCAAATGATATATCTTGGAAAGTACTAACCAGGAGACGAGGGTCGAGGTATAGAAGT
GATTTGGTCGAACCGAAATGAGGAACCCGGGTTTGGACACCAGGAGCATTTTGGTAATC
ATCCAAATCAGGGTCATAGTACAACATCATTCGATCGCTGAAGCACCTGGTGAAGGGAG
ACAATAAACTGCTGCATCGAACCATAGCCTAAACCATCCACCACTCTTCTTATGAATC
GGATATAACCAGCTGCTACACCAGACACTACTTGGCTTGTATTCTCTGTCCAGCCGTAC
CTCTAGCTGGTTACCTCCGTTTCTGGAACCAGAATCAAAGGGTACACGTTGCTACCCA
CAGCTTGACACATCGAGGTCATCGTCACCACAACGAGTATCGCTATGACTACCGAATAA
TGTGAAGATATTTTTTTTCATTTTCGTTCTAAGAAACAGACTCTCATGGTCATGGATCTA
TGCAGAAAGCTGGAGATTTGAAGAAAAAGGTCCATTGAATTTGAAAAACAGAGTAGTAT
CTTAAACGTAAGGCTTAAGATAAGTAGTATATGGTGGATATGGAACCCGCGTAATCAT
CTAGAGGCTCTACAAATATTTATTTTGTATTTCCTTCTTATTTTGTATTTGCCTACGTG
GCATTATACAACGTATTTAACTTGAAACCAGATTTATGGCCC**AATCGGTCGGGTCGACCG**
CGACCGATTTTAAACTGCGCTCCTAACTAAAAAAAGTCAAACCCCTTTGAAAAACCTA
AAAACGCAATTTGCTTCGTCGTCTCTCATCTCTTTCTCTTTCTCCG

TCGCCACCA**ATG**TTTGAGTACCGGTGCAGCTC

Query: 1 AATGGGTCGGGTCGACCCGACCGATT 26
||| |||||
Sbjct: 26 AATCGGTCGGGTCGACCCGACCCATT 1

Figure 16

Promoter 16 :

AGGGACTAGGAACTTAAGAAAAACAAAGTCATCAAAAAACAAAAAAAAGTT

GTGAGAAAATTCATGAGCACTCTTAGAAATGTAAATAGTTTGATTGAAGAAATGTGGT
 TTTTAAGAAGATAATTGCAAACTCAGAAAGGATTTACAAAAACAATTTCGTCGAAATC
 TTTCCCTCAATTTCTGTAATAATCCTTTCTTAAATTTTAGAAAAATTATTATTGAATGATTTT
 ACGAAATTTTCGGAAGCAATCTATAAAATTCAGGAAAGATATCA TAAAATTTATGAAGAG
 TTATACACAACAAAAAGAAATTTTTGAATTTTCATGAAATCCTTCGTAATTGCTTACATT
 CCTTCCTAAATTTTGTAATAATCTTCCTGGATTTTCTTTTGCGAGAAAAATAGGGGCATA
 TATTTTTTACGGGAAATTTTTTGACGAAACTTATTTTGGCGGAAAAAATTGTCAGGAA
 TTTTGGTAATGAATATGTGTATTTTTTTAATTGTTAATTTAATAATAAAATAAAATA
 GTTATCTGAATGTTATTTATGTCAAAAAAATATGAATGCTATTTTGTCTTAAAAAC
 TTAAATTTGACTATTTGAAGGAATTTTCATTTTATTTTATTAATGTGATTAGATTTATA
 ATTAATATAATTAATGATTGTAAATACTAACTTAAATTCTTATTTATAAACATAAAG
 TAATATTTAATTTTCTTTAATTAAAAATACATATTTTATTTTCATAATTTATTTTGCTT
 TTTTTTTTTTTTAGTTTTGATTTATTTTTAAACATATAATATGAGTATATGACTATATG
 ACATAGCATATTGGTTTATTTTGATTAGATAGAAAAGAGACGGGTGAATAAAAGGGTT
 TAATACTATGGTGAACCCAAGTATATATCGTCCATAACAAAAACACTATATAATTGAGG
 TTTGTAGATTGTGCAACACGTGTGGGCATATCAGCTTGTAGGATTGCCACATACATTA
 TCATGAGAAGCTTCCACCAGAATAAAGCAAAAACAAAAAATCCGAAAGCGGAGAGAACA
 AGGAAAACGAAAAACCATTGTGAAGTATAGTCCTTGATGC

ATGGATTCAATCAACAAGATCATCAACTTCTTGTTTCCTCTCT

Query: 1 TGAAATCTTTCCTGAATTTTCGTAAAAATCCTTTCTAAATTTTAGAAAATTATTATTGAAT 60
 ||| ||||| ||||| || || || || ||||| ||||| ||| |||
 Sbjct: 109 TGATATCTTTCCTGAATTTTATAGATCTTTCCGAAATTTTCGTAAATCATTCAAATAAT 50

Query: 61 GATTTTACGAAATTTTCGAAAGAATCTATAAAATTCAGGAAAGATATCA 109
 ||||| ||||| || || || || ||||| ||||| |||
 Sbjct: 49 AATTTTCTAAATTTTAGAAAGGATTTTACGAAATTCAGGAAAGATTCA 1

Figure 17

Table 2. Selected Seed-Specific Genes

The selected ESTs and their predicted protein sequences were blasted against protein and DNA sequence databases of NCBI, to identify a possible function of each gene and its corresponding Arabidopsis genome sequence.

ID	Description based on BLAST search of EST	Expres- sion Ratio	Clone ID	Accession Number of Genomic Clone	BLAST Alignment of EST to Genomic Sequence	
1	12S Cruciferin	49.9	<u>M30C01</u>	AL021749	13---283 65745---66103	
2	12S seed storage protein	78.8	<u>M29F06</u>	AB005239	191---399 15999---15804	
3	2S SEED STORAGE PROTEIN 3 PRECURSOR	41.5	<u>M09C04</u>	AL035680	8---369 32165---32525	
4	vicilin precursor	19.1	<u>M60B08</u>	AB022223	17---400 2559---2943	
5	similarity to vicilin (7S globulin)	17.3	<u>M51A09</u>	Z99708	15---328 69093---69460	327---399 69490---69563
6	12S seed storage protein	23.4	<u>M19H03</u>	AC003027	34---220 67515---67329	218---400 67229---67048
7	2S SEED STORAGE PROTEIN 1 PRECURSOR	60.0	<u>M52E11</u>	AL035680	22---380 27709---28066	
8	Unknown gene Laccase-like (diphenol oxidase)	11.6	<u>M18A04</u>	AB017064	24---150 66806---66680	148---371 66193---65973
9	Unknown protein Arabidopsis	37.2	<u>M42C12</u>	AC000375	16---399 8408---8025	
10	unknown protein	29.7	<u>M20H04</u>	AC004392	25---390 90414---90780	
11	Putative pyruvate kinase	69.2	<u>M36D01</u>	AB009055	32---374 68629---68966	
12	pyruvate dehydrogenase E1 alpha subunit	27.5	<u>M15B07</u>	AC007323	3---373 48490---48120	
13	Similar to nucleoid DNA- binding protein, aspartic proteinase, and pepsinogen A precursor	7.0	<u>M42A08</u>	AB026658	28---393 68590---68226	
14	A large hypothetical protein	8.6	<u>M40D09</u>	AC004557	18---393 82725---82350	
15	germin-like protein (oxalate oxidase), similar to auxin- binding protein, plant only	42.1	<u>M31F10</u>	AB010694	13---400 18058---17673	
16	Similar to 11beta- hydroxysteroid dehydrogenase, oxidoreductase	39.3	<u>M13A03</u>	AB023037	9---201 52852---52660 395---426 52096---52065	199---388 52589---52400

Figure 18a

ID	Description based on BLAST search of EST	Expression Ratio	Clone ID	Accession Number of Genomic Clone	BLAST Alignment of EST to Genomic Sequence
17	putative seed storage protein (vicilin-like)	19.0	<u>M32C09</u>	AC006587	23---161 158---341 14510---14372 14289---14106 342---400 14033---13975
18	Lipoxygenase-like protein	16.8	<u>M30E03</u>	AB022215	21---99 96---308 47943---48021 48768---48978
19	Unknown gene, some similarity to selenium-binding protein-like gene	31.8	<u>M55E09</u>	AC002387	26---90 89---244 73712---73648 72555---73400 245---400 73308---73153
20	Cytochrome P450-like protein	25.4	<u>M32E09</u>	AB007648	21---394 16931---16559

Figure 18b

Table 3. Primers for the PCR amplification of 12 promoter regions

name	sequence	position	REs	T(°C)	Length 1	Length2
1R	CACT GGATCC TTTTGTGTTTGTGTGAGAGATG	best+3	Bam	48	23	32
1F	CACT GAATTC ACAACATACACTCAAAATC	best	Eco	48	21	30
3R	CACT GGATCC GTTTTGCTATTGTGTATGTTTC	best+0	Bam	48	24	34
3F	CACT GAATTC AAGAGTGTAACACGTAC	best	Eco	48	18	27
4R2	CACT GGATC C TTGTTGTTTGTGTGATGTGT	best+5	Bam	48	22	31
4F2	CACT GAATT C CATGTGTTACACGTC	best	Eco	48	16	25
6R	CACT GGATCC GGGTGTGTTTGTGTTTGTATAAG	best+4	Bam	52	23	33
6F	CACT GAATT C TAAACGAGTAAAGTTAGCAC	best	Eco	52	22	31
7R	CACT GGATC C TATGTGTGTAIGTTTGGTTC	best+6	Bam	52	22	31

Figure 19a

name	sequence	position	REs	T(°C)	Length 1	Length2
7F	CACT GAATTC GATCCGAAAAGTAGAGTTTC	best	Eco	52	20	30
9R2	CACT GGATC C TTTTGATTTTTTGGATTAGATTGTGTTGTGGT	nb+0	Bam	52	34	43
9F	CACT GAAT TC AGAAAGAGAGAGTGAGC	best	Eco	52	18	26
13R	CACT GGA TCC GCGAAGGTTGATATGA	best+4	Bam	60	20	27
13F	CACT CAAT TG ACACGCAACCAACCAAGC	best	Mfe	60	20	28
14R	CACT GGATC C GGAGAAAAGAGAAAGAGAT	best+8	Bam	52	19	28
14F	CACT GAATT C ATCTCTGCAAAATCAAACC	best	Eco	52	19	28
15R	CACT GGATC C TCGCTCTTAATTGTTATGC	best+5	Bam	52	21	30
15F	CACT CAATT G TAAGTCGTTCTCTAAATCTTC	best	Mfe	52	21	30
16R	CACT GGATCC GCATCAAGGACTATACTTCAC	best+0	Bam	56	21	31

Figure 19b

name	sequence	position	REs	T(°C)	Length 1	Length2
16F	CACT GAATTC GTGAGAAAATTCATGAGCACTC	best	Eco	56	22	32
17R	CACT GGATCC GTTTCCTCCACTCTCTCC	best+0	Bam	56	16	26
17F	CACT GAATT C AAACGAGGCTCCAAATTC	best	Eco	56	19	28
19R	CACT GGATCC GTTGACTTGAAGACAAGC	best+1	Bam	52	18	28
19F	CACT GAATT C ACCAAGCCTATACAAAC	best	Eco	52	18	27

Position: Distance from the best position (for reverse primers, it is ATG)

REs : Restriction enzyme sites included

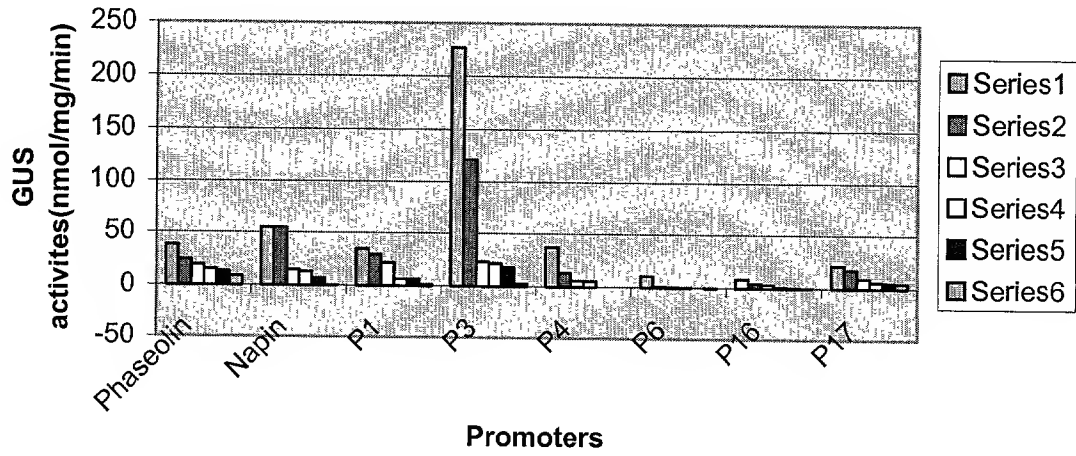
T(°C): Annealing temperature

Length 1: Length of the sequences exist in genomic sequences

Length 2: Full length

Figure 19c

Figure 20



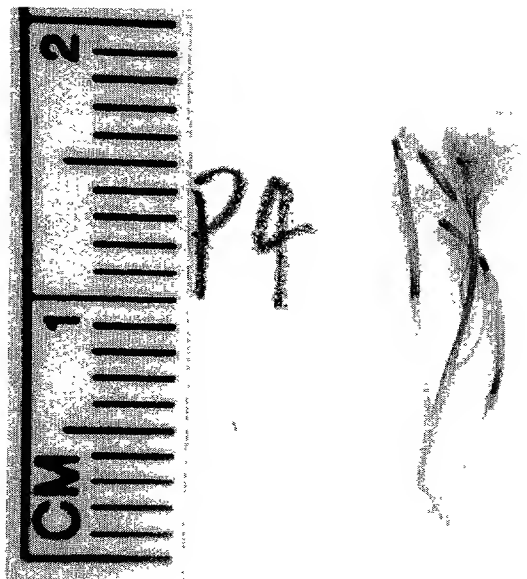


Figure 21

Figure 22

